



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO..
-----------------	-------------	----------------------	---------------------	-------------------

10/724,779

12/02/2003

Wen-Chi Wang

WANG3209/EM

1916

23364

7590

03/29/2005

BACON & THOMAS, PLLC  
625 SLATERS LANE  
FOURTH FLOOR  
ALEXANDRIA, VA 22314

EXAMINER

CHANG, DANIEL D

ART UNIT

PAPER NUMBER

2819

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

2

## Office Action Summary

Application No.

10/724,779

Applicant(s)

WANG ET AL.

Examiner

Daniel D. Chang

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,2,7 and 8 is/are rejected.  
7) ☒ Claim(s) 3-8 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/2/03, 6/4/04.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

Art Unit: 2819

***Claim Objections***

Claims 5-8 are objected to because of the following informalities: on line 7 of each claims 5-8, "non-inverting output terminal" appears to be --inverting output terminal--. Claim 6, line 14, it appears that the clause, "and the inverting output input terminal" should be deleted.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

On lines 17-18, the recitations, "the third resistor unit", "the fourth resistor unit", "the fifth resistor unit" and "the impedance matching resistor unit" lack antecedent basis.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 7, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Ferianz (US 2002/0070770 A1).

Art Unit: 2819

Regarding claim 1, Ferianz discloses, in fig. 2, a line driver (1), comprising: a differential amplifier (6) having an inverting output terminal (15), a non-inverting output terminal (14), an inverting input terminal (5), and a non-inverting input terminal (8); a first resistor (4) coupled to the inverting input terminal; a second resistor (7) coupled to the non-inverting input terminal; and a resistive feedback network (16, 18, 20-23), having a plurality of resistors in symmetric configuration to couple to the inverting output terminal, the non-inverting output terminal, the inverting input terminal, and the non-inverting input terminal to form a feedback network.

Regarding claim 2, Ferianz discloses, in fig. 2 that the resistive feedback network further includes a third resistor (20), a fourth resistor (21), a fifth resistor (22), a sixth resistor (23), a first match resistor (16), and a second match resistor (18), wherein a first terminal of the third resistor is coupled to the non-inverting output terminal and a first terminal of the first match resistor, a second terminal of the third resistor is coupled to the inverting input terminal and a first terminal of the sixth resistor, a first terminal of the fourth resistor is coupled to the inverting output terminal and a first terminal of the second match resistor, a second terminal of the fourth resistor is coupled to the non-inverting input terminal and a first terminal of the fifth resistor, a second terminal of the fifth resistor is coupled to a second terminal of the first match resistor, and a second terminal of the sixth resistor is coupled to a second terminal of the second match resistor.

Regarding claim 7, Ferianz discloses, in fig. 2, a line driver, comprising:

a differential amplifier (6) having an inverting output terminal (15), a non-inverting output terminal (14), an inverting input terminal (5), and a non-inverting input terminal (8);

Art Unit: 2819

a first input resistor (4) coupled to the inverting input terminal;  
a second input resistor (7) coupled to the non-inverting input terminal;  
a first impedance matching resistor (16) coupled to the non-inverting output terminal;  
a second impedance matching resistor (18) coupled to the inverting output terminal; and  
a resistive feedback network (16, 18, 20-23), having a plurality of resistors in symmetric configuration, wherein the resistive feedback network further includes:

a first resistor unit including a first resistor (20) connected to the first impedance matching resistor and the inverting input terminal; and a second resistor (21) connected to the second impedance matching resistor and the non-inverting input terminal, and one of the following three resistor units comprising:

[ a second resistor unit including a third resistor connected to the non-inverting output terminal and the inverting input terminal and a fourth resistor connected to the inverting output terminal and the non-inverting input terminal; ]

a third resistor unit including a fifth resistor (23) connected to the second impedance matching resistor unit and the inverting input terminal and a sixth resistor (22) connected to the first impedance matching resistor unit and the non-inverting input terminal; and

[ a fourth resistor unit including a seventh resistor connected to the inverting output terminal and the inverting input terminal and a eighth resistor connected to the non-inverting output terminal and the non-inverting input terminal. ]

Regarding claim 8, Ferianz discloses, in fig. 2, a line driver, comprising:

a differential amplifier (6) having an inverting output terminal (15), a non-inverting output terminal (14), an inverting input terminal (5), and a non-inverting input terminal (8);

Art Unit: 2819

a first input resistor (4) coupled to the inverting input terminal;  
a second input resistor (7) coupled to the non-inverting input terminal;  
a first impedance matching resistor (16) coupled to the non-inverting output terminal;  
a second impedance matching resistor (18) coupled to the inverting output terminal; and  
a resistive feedback network (16, 18, 20-23), having a plurality of resistors in symmetric configuration, wherein the resistive feedback network further includes:

a first resistor unit including a first resistor (20) connected to the non-inverting output terminal and the inverting input terminal and a second resistor (21) connected to the inverting output terminal and the non-inverting input terminal; and

a second resistor unit including a third resistor (23) connected to the inverting output terminal (via 18) and the inverting input terminal and a fourth resistor (22) connected to the non-inverting output terminal (via 16) and the non-inverting input terminal.

### ***Allowable Subject Matter***

Claims 3-4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 5 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph and correct the claim objection, set forth in this Office action.

Claim 6 is allowable over the prior art if claim objection is corrected.

### ***Conclusion***

Art Unit: 2819

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yokobori et al. (US 4,395,682) discloses a differential output circuit.

Thurnell (US 3,500,223) discloses a variable gain amplifier circuit.

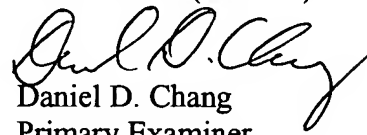
Stubbe et al. (US 5,614,846) discloses a single-ended to differential converter with relaxed common-mode input requirements.

Federspiel et al. (US 5,699,016) discloses a differential active filter of the second order.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel D. Chang whose telephone number is (571) 272-1801. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Tokar can be reached on (571) 272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Daniel D. Chang  
Primary Examiner  
Art Unit 2819

**DANIEL CHANG  
PRIMARY EXAMINER**

dc